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SMITH, GAMBRELL & RUSSELL, LLP
SUITE 3100, PROMENADE II
1230 PEACHTREE STREET, N.E.
ATLANTA, GA 30309-3592

EXAMINER:

RODEE, CHRISTOPHER D

ART UNIT PAPER NUMBER

1756

DATE MAILED: 02/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary	Application No. 10/694,126	Applicant(s) UCHIDA, MAKI	
	Examiner Christopher D RoDee	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 9-17 is/are pending in the application.
- 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 9-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/983471.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other: |

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DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claim 1, drawn to an electrophotosensitive material, classified in class 430, subclass 60.
- II. Claims 9-17, drawn to a method of making an electrophotosensitive material, classified in class 430, subclass 131.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the material of group I can be made by another and materially different process such as forming a photosensitive layer on a layer having a release surface, applying a thermosetting layer with the desired contact angle characteristics to the photosensitive layer, and transferring the combination of surface layer having a release surface, photosensitive layer, and intermediate layer to a support, heating the assembly to adhere the photosensitive layer to the support and removing the layer having a release surface from the photosensitive layer.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Robert Weilacher on 7 January 2004 a provisional election was made with traverse to prosecute the invention of Group II, claims 9-17. Affirmation

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of this election must be made by applicant in replying to this Office action. Claim 1 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9-12, 14, 16, and 17 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a process where the correlation of water contact angle and residual potential has been previously determined for a specific electrophotosensitive material as discussed below, does not reasonably provide enablement for a method as presented where this correlation has not been previously performed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Each of the instant claims is directed to a method of producing an electrophotosensitive material. Each claim requires the measurement of the water contact angle of the surface of the intermediate layer and when the water contact angle is not less than a value (A°), forming a photosensitive layer on the intermediate layer. The value (A°) is equal to ($B^\circ - 2$). B° is defined as a water contact angle corresponding to an intersection of a first approximate linear line and a second approximate linear line in a correlation curve between a residual potential of the electrophotosensitive material and a water contact angle of the intermediate layer; wherein the first approximate linear line denotes an approximate linear line of a portion of said correlation

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curve where the residual potential decreases proportionally with an increase in water contact angle, while the second approximate linear line denotes an approximate linear line of the portion of the correlation curve where a change in residual potential with an increase in contact angle nearly disappears. The specification also states on page 12, "It is necessary to previously determine the correlation between the residual potential of the photosensitive material and the contact angle of the intermediate layer. To determine the correlation, intermediate layers having different curing degrees are formed by varying heat treatment conditions of the thermosetting resin to be used and, after measuring the contact angle, on each of the intermediate a photosensitive layer is formed layers under the same conditions."

It is apparent from the above discussion that the value (A°) is dependent on the residual potential of the electrophotosensitive material. This material has three required components: a supporting substrate, an intermediate layer containing a thermoplastic resin, and a photosensitive layer. In order to determine the residual potential of the electrophotosensitive material, the three layer structure must be formed and the correlation of residual potential and water contact angle for a specific electrophotosensitive material must be determined. See specification pages 24 and 25. With this information for a given electrophotosensitive material, the artisan could measure the contact angle, then refer to the correlation (e.g., from Figure 1), and determine if the photosensitive layer should be coated.

The claims as presented do not require the previous determination of the correlation of residual potential and water contact angle for the electrophotosensitive material being formed. There is no disclosed means, method, or calculation that would permit the artisan to determine the residual potential of the electrophotosensitive material before it is actually formed. Clearly the artisan would be faced with undue experimentation and conjecture to arrive at the value (A°) before making the correlation of residual potential and intermediate layer water contact angle.

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The claims as presented are not enabled because they do not require the determination of the correlation between residual potential and intermediate layer surface's contact angle before the claimed process steps.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9-14 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims specify a step of measuring the water contact angle of the surface of an intermediate layer. When the water contact angle is within a prescribed range, a photosensitive layer is formed. However, the instant claims process steps are unclear as to how to form the electrophotosensitive when the water contact angle is outside the specified range. The claim preamble is specific that the process is for producing an electrophotosensitive material but this appears to require the presence of a photosensitive layer. The claims fail to particularly point out and distinctly claim what step or steps are to be carried out to form an electrophotosensitive material when the intermediate layer's surface has a water contact angle outside the prescribed range.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15 is rejected under 35 U.S.C. 102(e) as being anticipated by Yamanami *et al.* in US Patent 6,355,390.

Yamanami discloses a process of making a photoconductor (see Example 8) where a first undercoat layer containing melamine (i.e., a thermoplastic polymer) and titanium oxide is coated on a support and dried. A second undercoat layer is then formed on the first undercoat layer and dried. The reference states this process crosslinks the components of the two layers (col. 5, l. 30-45). A photosensitive layer (i.e., a charge generator layer) is then formed on the surface of the intermediate layer. This process would produce a water contact angle for the intermediate layer within a range. The claims are not specific as to what this water contact angle range is. Consequently, any produced water contact angle meets the requirements of the claims. Examples 9-21 are similarly applicable to the instant claims.

Examples 22-31 present methods of producing the photoconductors of that invention, but where a single underlayer containing melamine are produced as an intermediate layer. This layer is heated to crosslink the components.

Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Obinata *et al.* in US Patent 5,928,824.

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Obinata discloses a process of making a photoconductor having a conductive substrate, an intermediate layer, and a photoconductive layer (Abstract). Coating and drying a composition of the substrate form the intermediate layer. The reference states that the intermediate layer is heated at a temperature of from 100 to 200 °C in the presence of a crosslinking agent to crosslink the layer. Thermosetting resins are disclosed, such as phenolic resins, epoxy resins, and melamine resins (col. 4, l. 8-25). One specific embodiment uses a thermosetting acrylic resin as the polymer in the intermediate layer (col. 5, l. 49-67). This process would produce a water contact angle for the intermediate layer within a range. The claims are not specific as to what this water contact angle range is. Consequently, any produced water contact angle meets the requirements of the claims.

Claim 15 is rejected under 35 U.S.C. 102(b) as being anticipated by Nogami *et al.* in US Patent 5,561,022.

Nogami discloses in the examples a method of making a photoconductor where a support is coated with an intermediate layer and then a photosensitive layer. The intermediate layer contains a melamine resin (i.e., a thermosetting resin) and this layer is heat treated to harden the layer (see Examples; col. 8, l. 30 - col. 14, l. 34; Tables 2 and 7). This process would produce a water contact angle for the intermediate layer within a range. The claims are not specific as to what this water contact angle range is. Consequently, any produced water contact angle meets the requirements of the claims.

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Gudimenko *et al.* in US Patent 5,948,484.

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This reference is applied for the condition where the contact angle is outside a predetermined range. See Example 24 where a thermosetting polymer layer is applied to a stainless steel sheet. The water contact angle is measured as 93° . Because the claim does not specify the predetermined range, it permits the artisan to select any range. Thus, an arbitrary selection of 5 to 10° is permitted. The measured value of 93° is outside the predetermined range and, consequently, the photosensitive layer need not be formed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on most weekdays from 6 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.

cdr
26 January 2004


CHRISTOPHER RODEE
PRIMARY EXAMINER